

WHAT IS CLAIMED IS:

1. A method for adaptively starting an internal combustion engine connected to a generator, comprising  
operating the generator as a motor to start the internal combustion  
5 engine;  
raising the oil pressure of the engine to a predetermined oil pressure;  
applying an ignition spark in the engine after the predetermined oil pressure is obtained in the internal combustion engine;  
supplying fuel to the internal combustion engine after a stable ignition  
10 spark has been achieved;  
removing the generator as the motor to start the internal combustion engine after the internal combustion engine has reached a predetermined rotation; and  
raising the temperature of the internal combustion engine before maximizing an output of the internal combustion engine.
- 15 2. The method of claim 1, wherein a pump is used to raise the oil pressure of the engine.
3. The method of claim 1, wherein the temperature of the internal combustion engine is raised while in an idle mode.
4. The method of claim 1, wherein the temperature of the engine is raised  
20 by an external device prior to starting.
5. A method for adaptively stopping an internal combustion engine connected to a generator, comprising  
allowing the internal combustion engine to idle;  
activating a cooling system in order to lower a temperature of the  
25 internal combustion engine to a first predetermined temperature;  
shutting off fuel supplied to the internal combustion engine after the internal combustion engine is below the first predetermined temperature level;  
turning off an ignition spark in the internal combustion engine after the internal combustion engine has stopped; and

turning off the cooling system after the temperature of the internal combustion engine is lowered to a second predetermined temperature which is lower than the first predetermined temperature.

5           6.       The method of claim 5, wherein the first predetermined temperature is a temperature used to prevent thermal shock.

          7.       The method of claim 5, wherein the first predetermined temperature is a temperature in which the internal combustion engine has been uniformly cooled.

          8.       The method of claim 5, wherein the engine stops after the fuel in the internal combustion engine has been burned off.

10          9.       The method of claim 5, wherein the engine stops after the fuel and fuel vapor in the internal combustion engine have been burned off.

          10.      The method of claim 5, wherein the second predetermined temperature is a temperature in which heat is not released from the internal combustion engine to the atmosphere.

15          11.      The method of claim 5, wherein the second predetermined temperature is a temperature in which the internal combustion engine has been uniformly cooled.

          12.      A vehicle, comprising:

                  an internal combustion engine;

                  a generator connected to the internal combustion engine; and

20               a controller that:

                          operates the generator as a motor to start the internal combustion engine;

                          raises the oil pressure of the engine to a predetermined oil pressure;

25                       applies an ignition spark in the engine after the predetermined oil pressure is obtained in the internal combustion engine;

                          supplies fuel to the internal combustion engine after a stable ignition spark has been achieved;

                          removes the generator as the motor to start the internal combustion engine after the internal combustion engine has reached a predetermined rotation; and

30

raises the temperature of the internal combustion engine before maximizing an output of the internal combustion engine.

13. The vehicle of claim 12, wherein a pump is integral with the generator in order the raise the oil pressure.

5 14. The vehicle of claim 12, wherein the temperature of the internal combustion engine is raised while in an idle mode.

15 15 The vehicle of claim 12, wherein the temperature of the engine is raised by an external device prior to starting.

10 16. A vehicle, comprising:  
an internal combustion engine;  
a generator connected to the internal combustion engine; and  
a controller that:  
allows the internal combustion engine to idle;  
activates a cooling system in order to lower a temperature of the  
15 internal combustion engine to a first predetermined temperature;  
shuts off fuel supplied to the internal combustion engine after  
the internal combustion engine is below the first predetermined temperature level;  
turns off an ignition spark in the internal combustion engine  
after the internal combustion engine has stopped; and  
20 turns off the cooling system after the temperature of the internal  
combustion engine is lowered to a second predetermined temperature which is lower  
than the first predetermined temperature.

17. The vehicle of claim 16, wherein the first predetermined temperature is a temperature used to prevent thermal shock.

25 18. The vehicle of claim 16, wherein the first predetermined temperature is a temperature in which the internal combustion engine has been uniformly cooled.

19. The vehicle of claim 16, wherein the engine stops after the fuel in the internal combustion engine has been burned off.

30 20. The vehicle of claim 16, wherein the engine stops after the fuel and fuel vapor in the internal combustion engine have been burned off.

21. The vehicle of claim 16, wherein the second predetermined temperature is a temperature in which heat is not released from the internal combustion engine to the atmosphere.

5 22. The vehicle of claim 16, wherein the second predetermined temperature is a temperature in which the internal combustion engine has been uniformly cooled.